and method of expert estimations. There are characterized the relationship between selected parameters and the environmental condition of roadside area.

Highway, motor transportation streams, roadside area, environmentally significant parameters.

UDC
631.333.92

ECSPERYMENTALNI STUDY OF bioconversion composting poultry manure

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To select and study processes manure and waste processing poultry enterprises with further improving and perfecting technological regimes conducted experimental studies to elucidate its bioconversion composting.

Co.mpostuvannya, aerator mixer, clamp, rapid processing of manure, organic compost.

Resolutionsca problems.Obtaining high-quality organic fertilizer from poultry manure - an important economic, ecological and economic problem. Economic solve it tends to decrease storage space areas for manure and manufactured fertilizers, improve logistics, improving soil fertility.

The costs to be reimbursed pereroblyannya litter by obtaining products with new quality indicators for the consumer with high agrotechnical value and marketing appeal. Development of new methods pereroblyannya poultry manure into organic fertilizer was also drawn to avoid
effects of harmful effects on the environment: reducing emissions of gases and odors, improve the ecological situation around birdivnytskyh systems in general.

AnaLease Latestnih lit.idzhen. Techtech toIMOgi thatto toiotermichnoho composting of poultry manure in Ukraine vnormovani departmental rules VNTP-04-05-APC and APC-VNTP-09-

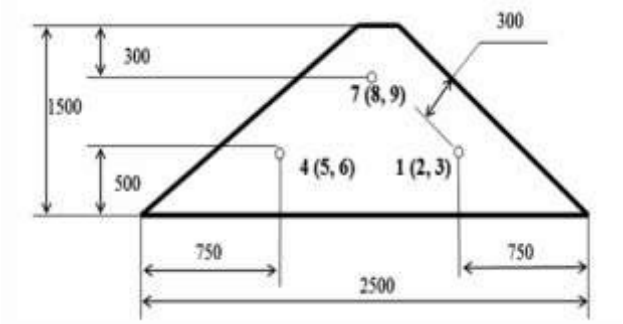
06But practical implementation is constrained by lack of data on the characteristics and modes of processes.

Much attention is paid to the development of new approaches [1] and means for obtaining high-quality compost [2] and
their effective use. Recently, various systems used composting compost aerator faucets, [3] and aggregating different designs for mechanization of manufacturing operations in the production of organic fertilizers.

Metand research - Justification process patterns
atbiotermichnoho accelerated composting of poultry manure to justify its technological and operational parameters and obtaining high-quality organic fertilizer.

Rezultaty dperssurvey findings. Eksperymentalno-production
research conducted 2011-2013. PAT at the landfill
"Volodymyr-Volyn poultry farm "(Volyn region.). Research bioconversion process of composting manure carried in the collar with periodic trapezoidal perelopachuvannyam mixer-aerator compost construction mechanization Livestock Institute [4].

ProgramI was supposed to study the kinetics of clarifying laws biotermichnoho composting process by temperature regimes in the collar for the duration of observation. Monitoring the temperature of compost mixture was performed in 9 locations collar (Fig. 1). Temperature compost mixture was measured with a digital thermometer TO-TS022T №10.004 Sensing TO-010 (h) №10.801 schupu length of 60 cm, measuring range of 250 oC to + -50oS sensitivity measurements 0,01oS.



Ric. 1. General view of the collar and temperature measurement points scheme.

Ripeilist compost evaluated organoleptic observations: color masses, no smell, structure and Friability. The second phase was conducted definition

ximichnyh properties of mixtures according to GOST 26713-85, GOST 26716- 85, GOST 27979-88 and GOST 27980-88. An independent evaluation of the properties of the produced compost - Volyn Regional Center "Oblderzhrodyuchist." Fractional composition (percentage by weight fractions) was determined using standard sieve classifier with a diameter of 10; 7; 5; 3; 1; 0.5 and 0.25 mm.

Technological features of the experiment was as follows. Compost mixture that has been involved in composting, prepared by mixing the components to the density of not more than 600 kg / m 3, porosity of at least 30% by volume. Moisture prepared mix within 55-65%. In the case of reducing weight in moisture compost piles less than 45% (eg, hot summer periods) held its periodic surface wetting followed by mechanized perelopachuvannyam entire collar.

Compost mixture balansuvalas for nutrients involved in microbiological processes, the ratio of carbon and nitrogen (C: N = 25 ± 5: 1) pH - 6,0-8,0 and the presence of organic least 75% of dry matter . Balancing compost mixtures ensures the avoidance of losses (emission) of nitrogen as a nutrient component Manure [5].

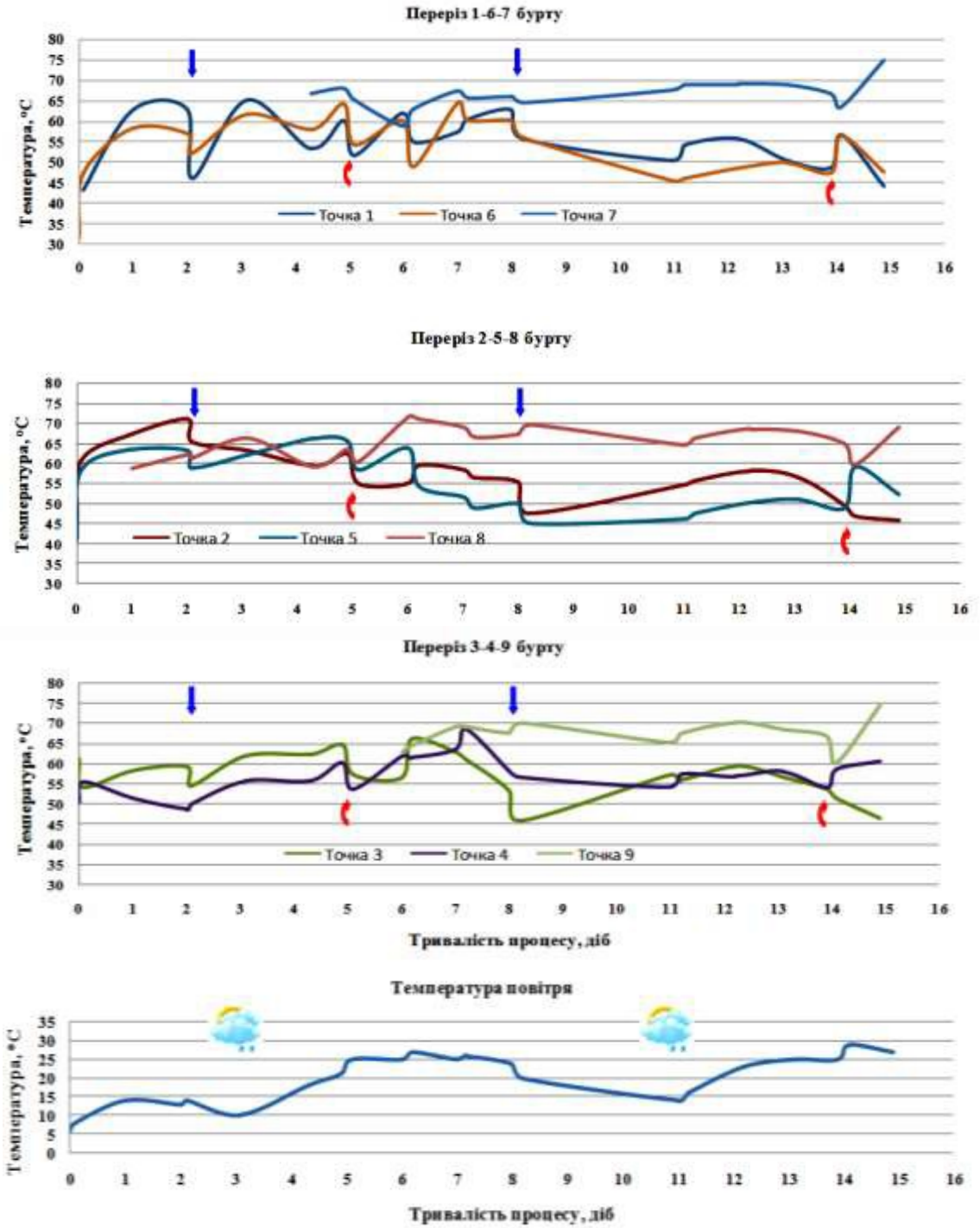
Pereiodychne perelopachuvannya with mechanical aeration compost mixture provides efficient flow aerobic process and prevents the formation of anaerobic zones, as is the case in traditional bulk storage of manure in piles. Mechanical aeration stimulates oxidative processes biotermichni provides processes of respiration and activity of microorganisms, which speeds up the decay of organic waste compounds. Reheating mixture to thermophilic temperatures (55-65oS) provides disinfection of pathogenic organisms, dezinvaziyu, deodorization of odors and deprivation seed germination of weeds.

Faeces Burt summer assembly - tearing through 5- 7 days after the biotermichnoho intensive process. The next operation - after 10 days. Additional perelopachuvannya clamps are performed in the case of temperature increase compost mixture over 65oS.

The first pie was laid balanced mixture of litter manure (60 t, collar length 50 m). The duration of the composting process - 72 days. Kinetics temperature conditions in the compost mass collar in different periods of the composting process and meteorological conditions graphically shown in Fig. 2 - Fig. 4.

According to observations during the first 15 days (Fig. 2), the average temperature in the collar points were as follows: 1 - 55,2oS; 2 - 56,7oS; 3 - 57,1oS; 4 - 56,8oS; 5 - 55,4oS; 6 - 53,5oS; 7 - 71,1oS; 8 -

65.4[about]C; 9 - 67,4oS, ie biotermichni process parameters are in IUMsthermophilic's regime and provide decontamination of pathogenic organisms and deprivation seed germination of weeds in compost in accordance with the requirements VNTP-APC-09.06.

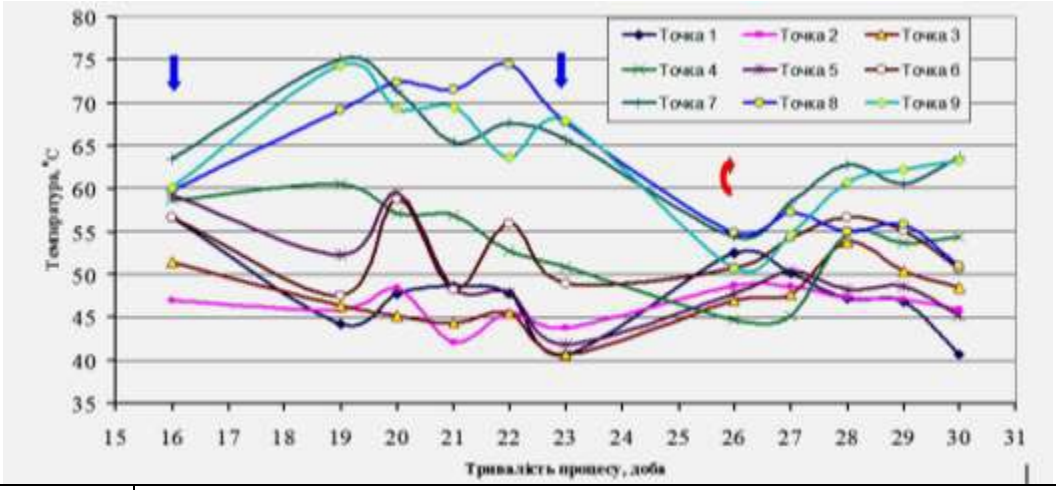


-fromvolozhennya mass

-relopachuvannya mass.

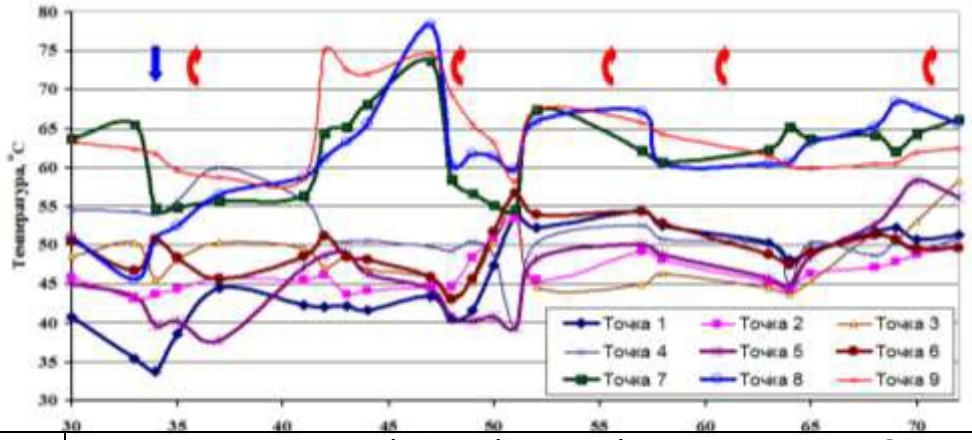
Ric. 2. Graphs kinetic temperature control litter manure compost mass in sections collar and meteorological conditions during the first 15 days.

Pislya operation perelopachuvannya been gradually increasing temperature in the collar, notably based on observations of the dynamics of temperature in the middle of it, the time interval 16-20 day and 26-30 day (Fig. 3), 37-47
d (Fig. 4).



Process paramete	Tpoints and measuring temperature, oC								
	1	2	3	4	5	6	7	8	9
Maksymum	56.64	48.70	53.82	60.56	59.40	58.71	75.05	74.39	74.31
Minimmind	40.64	42.10	40.64	44.70	41.86	47.57	54.36	50.97	50.71
The	47.54	46.34	47.32	53.57	49.89	53.02	64.38	62.60	63.27

Ric. 3. Charts kinetic temperature control compost manure litter weight at collar and meteorological conditions for 15-30 days.



Process paramete	Tpoints and measuring temperature, oC								
	1	2	3	4	5	6	7	8	9
The	45.84	46.50	48.21	50.92	46.28	49.52	61.89	61.30	64,11
Maksymum	54.38	53.43	58.36	60.01	58.26	56.72	73.63	78.34	75.08
Minimmind	33.76	43.14	43.49	39.34	37.67	42.95	54.62	45.54	58.18

Ric. 4. Charts kinetic temperature control compost manure litter weight at collar and meteorological conditions for 30-72 days.

Diapazon maximum temperatures during the first fifteen days was within 65-71oS within the next 15 days within 74-75oS, the final stage of composting within 73- 78oS.

The average temperature was on the upper limit of thermophilic regime: for the first fifteen days - 65-67 ° C over the next 15 days within 62-64 ° C, the final stage of composting within 61-64 oC.

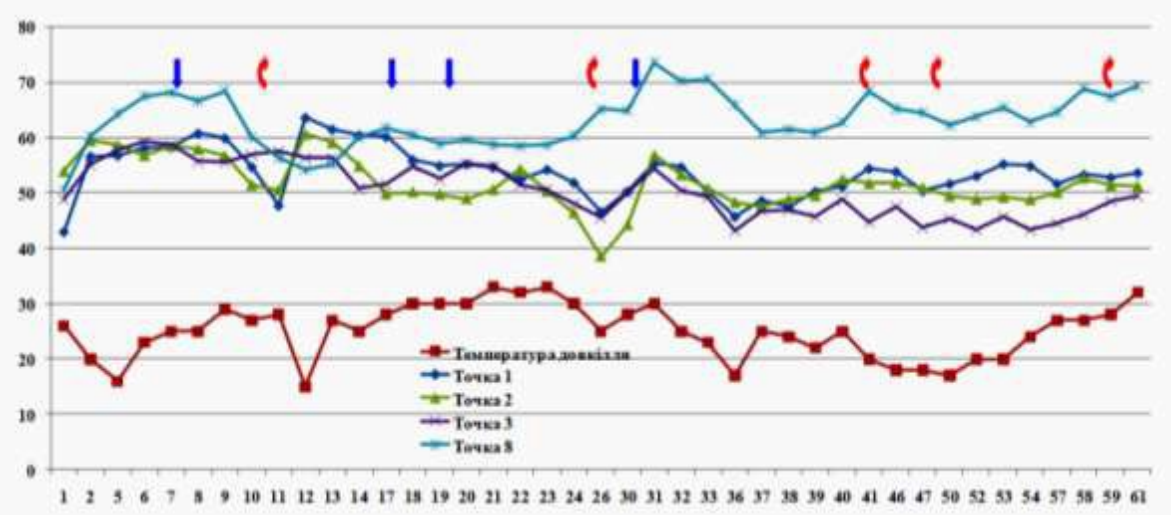
The most significant temperaturesneither frommines ACTsterihalys to peripheryiynyh collar areas due to fluctuations in ambient temperature and after direct perelopachuvannya collar.

Diapazon restrictions limiting the minimum temperature in peripheral areas was 37-44oS, and in the central part - 45- 54oS.

In general, experimental studies have established production efficiency of composting balanced compost mixtures based litter manure in open collar using perelopachuvannya operations and moisture. Clarified kinetics biotermichnoho process.

The second pie mix laid litter manure (20 t, collar length 18 m) with the introduction of 7.5% of the waste slaughter house. The duration of the composting process - 63 days.

The average temperature inside the collar (point 8) for the entire period of observation was 62,8oS with fluctuations in periods of 58,3oS to 69oS, with maximum and minimum values 73,5oS 50,6oS (Fig. 5, Tab. 1).



Ric. 5. Graphs kinetic temperature control litter manure compost mass slaughter house waste (7.5%) in the collar and meteorological conditions.

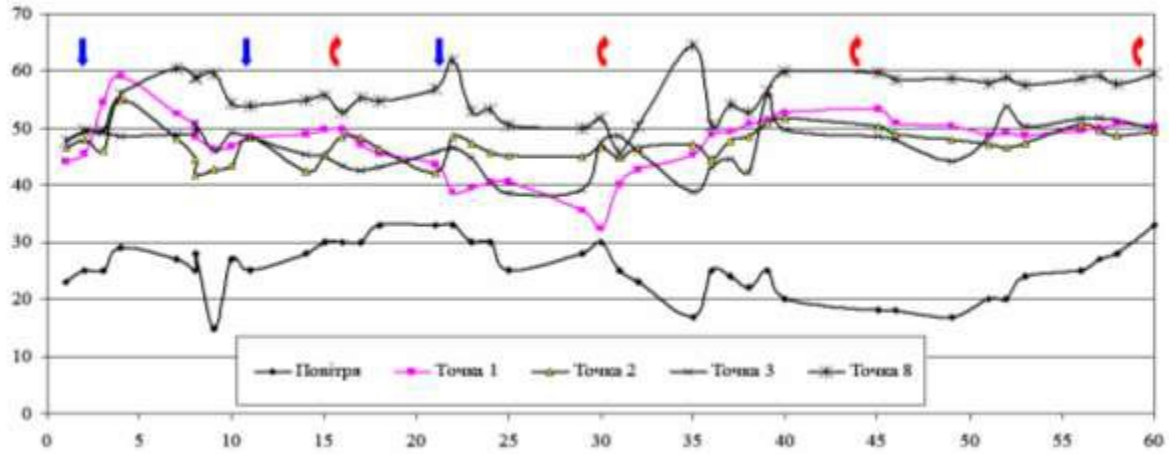
1. Analysis of temperature control collar №2.

Parameter	Air	T1 point	T2	T3	T8
Average for the period 1-9 days	22.4	54.8	56.2	56.0	62.8
Average for the period 10-20	25.8	56.8	53.6	55.0	58.3
Average for the period 21-30	30.4	52.8	48.4	51.1	59.9
Average for the period 31-40	24.6	51.2	50.6	49.4	69.0
Average for the period 41-50	22.3	51.0	50.3	46.7	63.2
Average for the period 51-63	23.7	52.9	50.2	45.5	65.4
The average for the entire cycle	24.8	53.5	51.8	50.9	62.8
Maksymum	33.0	63.6	60.6	59.2	73.5
Minimmind	14.0	43.0	38.5	43.1	50.6

In peripheral measurement points range of medium temperature fluctuations was in the range of 50,9oS to 53,5oS.

In the third clamp laid balanced mixture of litter manure (20 t, collar length 18 m) with the introduction of 5% of waste
SARiynoho shop. After the formation of the pie was covered with foil.

The average temperature inside the collar (point 8) for the entire period of observation was 55,5oS with fluctuations in periods of 53,3oS to 58,7oS. The maximum value was 64,4oS and minimal - 45,7oS (tab. 2). In peripheral measurement points range of medium temperature fluctuations was in the range of 46,9oS to 47,3oS (tab. 2).



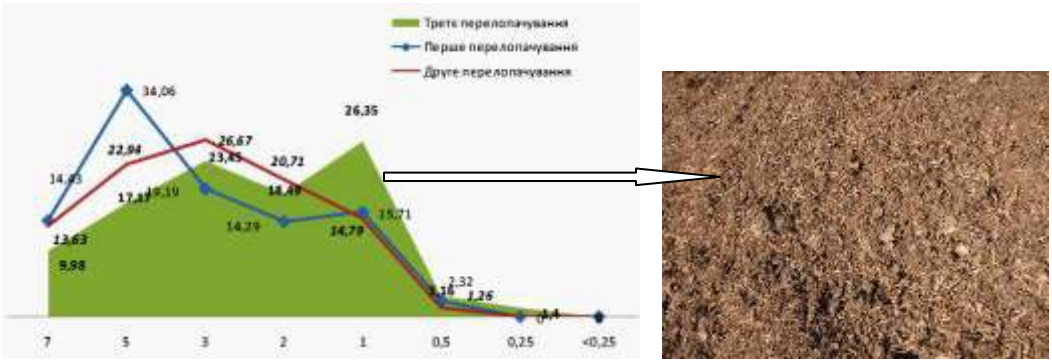
Ric. 6. Charts kinetic temperature control litter manure compost mass slaughter house waste (5%) in the collar and meteorological conditions.

From the analysis of graphic interpretation (Fig. 7) changes in the fractional part, there is a gradual shift of the maximum percentage towards smaller fractions after each subsequent perelopachuvannya. After the third perelopachuvannya percentage fractions 5-7 mm halved (17.17%) in

cf.ivnyanni of performance after the first perelopachuvannya, and the percentage of fractions 1-2 mm respectively increased by almost half (26.35% vs. 15.71%).

2. Analysis of temperature control collar №3.

Period process	Temperatura, C				
	Air	1	2	3	8
	The average for the decade				
01-10 day	24.89	49.77	46.20	48.75	54.94
11-20 day	29,33	48.22	46.57	44.60	54.57
21-30 day	29,33	37.88	46.43	42.85	53.30
31-40 day	22,63	47.67	47.71	46.11	54.26
41-50 day	18.25	50.82	48.58	47.27	58.68
	The average for the entire period				
01-60 day	25.5	47.27	47.10	46.89	55.47
Maksymum	33,00	59.14	54.8	55.63	64.37
Minimmind	15,00	32.35	41.7	38.6	45.67
51-60doba	2617	49,69	48,66	51,45	58,59



Ric. 7. Changes in fractional composition (%) compost mixture after operations perelopachuvannya.

Pislya processing manure was held agrochemical independent analysis of the obtained product (Volyn State Regional Engineering Center of Soil Fertility and product quality "Oblderzhrodyuchist"). The analysis presented in Table. 3.

3. Agrochemical properties of compost.

Characteristic	Unit of measure	Performan		
	BMIArt in absolutely dry matter compost			
Number collar		1	2	3
AndSot general (N)	%	3.00	4.50	3.60
Phosphorus (P2O5)	%	2.83	4.00	4.20
Kaliy (K2O)	%	3.15	2.95	2.82
FromOla	%	26.0	19.0	18.3
Orhanichnarechovyna	%	74.0	81.0	81.7

Buyvzhennya tab. 3

Characteristic	Unit of measure	Performan		
Organic carbon	%	37.0	40.5	40.85
C: N	to.o.	12.3: 1	9:	11.3: 1
pH	-	8.6	1	8.5
In theoloha	%	51,94	62,59	41,64

According averages the total number of active nutrients (NPK) in 1 ton of compost is 49.4 kg. One ton equivalent replaces 103.0 kg of NPK fertilizer (16:16:16) and has a potential value of about 468.5 UAH / t.

Conclusion. Expertmental-production daboutslidzhennyamy established the effectiveness of the composting balanced compost mixtures based litter manure in open collar using perelopachuvannya operations and humidifying depending on the kinetics biotermichnoho process and properties of components.

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For Choice and justification processes Converting dung and waste ptytsevodcheskyh enterprisesand with onThe next andx

usovershenstvovanyem and otrabotkoy of technological regimes provedenы Experimental Studies with Establishment zakonomernostey ego byokonversnoho kompostyrovanyya.

Co.mpostyrovanyya, aэrator-mixer, collar uskorennoe Converting dung, orhanycheskye kompostы.

Experimental researches are conducted with establishing of conformities to the law of biological-conversion process of composting for a choice and ground of processes of redoing of manure and organic wastes of poultry farming's enterprises with their subsequent improvement, working up technological mode.

Composting, aerator, mixer, clamp, rapid processing of manure, organic compost.

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378.27

Improved methods using multimedia in teaching students

From.In. Ruzhylo, LL Rogovskiy, Y. Revenko, Ph.D.

Rozhlyanuti problem graphic preparation of students and how their solution.

Educational process, students and technique.

Introduction. ActsMOSC introduction in the educational process of new educational technologies aimed at the development and improvement of training, improving the quality of the educational process. The need for improving the technology of teaching, including through the implementation of a learning process new information technologies by the current socio-economic conditions. Prepared and demand expert should not only have professional expertise in the relevant field, but the ability to work in different structural units of the company, with the desire and ability to learn, improve their skills.

Resolutionska problem. In today's strategic development national education is one aspect of problem solving and personal development of students technologizing process. Pedagogy at this stage filled with new postulates - activity